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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/561,334  
Filing Date: December 15, 2005  
Appellant(s): ROBERTS ET AL.

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W. Brinton Yorks, Jr.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 05 May 2009 appealing from the Office  
action mailed 03 March 2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 2003/0055478	Lyster et al.	03-2003
US 4,785,812	Pihl et al.	11-1988
US 6,336,047	Thu et al.	01-2002
EP 57,561 B	Matthews et al.	04-1986

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 1-4, 7, 10-14, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyster et al. (US 2003/0055478) in view of Pihl et al. (US 4,785,812), hereinafter Lyster and Pihl, respectively.**

In regards to **claim 1**, Lyster discloses a defibrillator apparatus (Par. 006) comprising: an electrode(s) 150 with attached lead wire; an electrode compartment (i.e. housing 450 or 3050) with an attached conductor (i.e. one of electrodes 150); and an electrode deployment detector (i.e. status measurement unit 2760 and/or the electrode signal management unit 2716 in conjunction with the further disclosed circuitry such as memory 2730, processing unit 2732, etc.) configured for: monitoring a magnitude of an electrical characteristic (i.e. voltage or real impedance/resistance and imaginary impedance/reactance/capacitance) measured from an electrical circuit having, from a source 2712, an electric current path that includes said electrode 150 with attached lead wire, said conductor 150, and a space or other electrical insulator (i.e. release layer 2010) intervening between said conductor and said electrode with attached lead wire, said compartment conductor 150 being disposed in proximity of said electrode with attached lead wire to create capacitance in said electrical circuit; and identifying, based on a change of said magnitude an occurrence of at least one of handling of said electrode with attached lead wire and removing of said electrode with attached lead wire from the compartment (Par. 195-208, 234-243, and 259-262; Fig. 20-21D and 27-30). Even as Lyster implicates said source of electric current being an alternating current source, Lyster fails to explicitly disclose said source as such.

Attention is directed towards the secondary reference of Pihl which discloses a defibrillation apparatus (Fig. 1) able to measure impedance between the defibrillator's electrodes 16,18 by applying an alternating current to the corresponding electrode leads 12,14 in order to monitor the status of the electrodes for electrical stimulation. Pihl further discloses an AC current source (i.e. oscillator 30) supplying the alternating electric current to the circuit path which includes the electrodes, leads, and a dielectric (e.g. air), (Col. 3, Lines 38-49; Col. 4, Lines 20-35; Col. 7, Lines 1-49; Fig. 1). Lyster and Pihl are concerned with the same field of endeavor, namely the design of cardiac defibrillation systems that measure impedance between defibrillation electrodes. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lyster to incorporate an AC current source, as taught in Pihl, in order to identify, based on a change of impedance, an occurrence of at least a handling of a defibrillator electrode with attached lead wire.

In regards to **claim 2**, Lyster discloses wherein said electrical circuit is configured so that said magnitude varies with said capacitance (Par. 200).

In regards to **claims 3 and 4**, Pihl discloses wherein said electrical circuit includes an integrator 36 in series with said capacitance and a rectifier 160 for rectifying input voltage to the integrator (Col. 5, Line 60 - Col. 8, Line 16).

In regards to **claim 7**, the Lyster and Pihl combination disclose wherein the alternating electric current path further includes another electrode and attached lead wire (Lyster- Fig. 19 and 20).

In regards to **claim 8**, the Lyster and Pihl combination further disclose wherein the alternating electric current path further comprises an electrically conductive medium (i.e. conductive strip 550) disposed between the electrodes that provides a pathway for flow of electric current from one of the lead wires to the other by means of the electrodes and said medium (Lyster - Par. 103; Fig. 5B).

In regards to **claim 10**, the Lyster and Pihl combination disclose the apparatus of claim 1 comprising a defibrillator that is configured to issue a sequence of user prompts and to advance from a particular one of the user prompts to a next one of the user prompts upon said identifying (Lyster - Par. 243-246; Pihl - Col. 4, Line 54 - Col. 5, Line 25).

In regards to **claims 11-14, 17, 18 and 20**, claimed subject matter is substantially similar in scope to matter rejected earlier in claims 1-4, 7, 8, and 10, respectively, above; therefore claims 11-14, 17, 18, and 20 are rejected for at least the same reasons by the Lyster and Pihl combination.

**Claim 5, 6, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyster in view of Pihl as applied to claim 1 and 11 above, and further in view of Thu et al. (US 6,336,047), hereinafter Thu.**

In regards to **claim 5**, the Lyster and Pihl combination disclose the apparatus of claim 1, except wherein said source periodically shifts between different frequencies of alternation. Attention is directed towards the tertiary reference of Thu, which discloses a system for measuring the positioning of electrode pads for a defibrillator (AED). Thu's system utilizes oscillators 8 (alternating current sources) that emit two different

Art Unit: 3766

frequencies to determine if electrodes are properly positioned, and if so, automatically enters training mode. Thu's device is able to differentiate between the status of the connection between the electrode 1 and the conductor (i.e. sensor 2) and the exact positioning of the electrode (Col. 4, Lines 4-31 ; Fig. 2-7). Lyster, Pihl, and Thu are concerned with the same field of endeavor, namely the design of cardiac defibrillation systems that measure the impedance of defibrillation electrodes. Therefore, it would have been obvious to one of ordinary skill in the art at the time of appellant's invention to modify the Lyster and Pihl combination to incorporate AC sources with the ability to periodically shift between different frequencies of alternation, as taught by Thu, in order to monitor the status of defibrillator electrodes and be able to differentiate between handling/removal of the electrodes and a system fault condition.

In regards to **claim 6**, the Lyster, Pihl, and Thu combination further discloses wherein said electrical circuit is configured so that said magnitude varies with said capacitance; and wherein said electrode deployment detector is configured to perform said identifying based on at least one of a sum and a difference between measurements of said magnitude that correspond to respective ones of said frequencies (i.e. a function of Lyster's integrator 36 or Thu's amplifiers 7), (Lyster - Col. 5, Line 60 - Col. 6, Line 2; Thu - Col. 4, Lines 23-31 ).

In regards to **claims 15 and 16**, claimed subject matter is substantially similar in scope to matter rejected earlier in claims 5 and 6, respectively, above; therefore claims 15 and 16 are rejected for at least the same reasons by the Lyster, Pihl, and Thu combination.



**Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyster in view of Pihl as applied to claim 8 and 18 above, and further in view of Matthews et al. (EP 57,561), hereinafter Matthews.**

In regards to **claim 9**, the Lyster and Pihl combination disclose the apparatus of claim 8, except wherein activation of a source for the electric current from one of the lead wires to the other and activation of said source of alternating current are alternated in a time division manner. Attention is directed towards the tertiary reference of Matthews, which discloses a muscle stimulator comprising: a source of electrical signals; a plurality of electrodes adapted to be applied adjacent respective locations on the epidermis of a person to stimulate underlying muscles; the source of electrical signals comprising a pulse generator for producing a train of muscle stimulating pulses which are sequentially applied by a time division multiplexer 15-18 to electrode pairs (Abstract, Par. 1 ; Fig. 1). Lyster, Pihl, and Matthews are concerned with the same field of endeavor, namely the design of therapeutic devices for delivering electrical stimulation to muscles using electrodes placed on the surface of the skin. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Lyster and Pihl combination to incorporating a means for implementing time division current flow between different groups of electrodes/conductors, as taught by Matthews, in order to alternate between two activation modes for the alternating current source.

In regards to **claim 19**, claimed subject matter is substantially similar in scope to matter rejected earlier in claim 9 above; therefore claim 19 is rejected for at least the same reasons by the Lyster, Pihl, and Matthews combination.

**(10) Response to Argument**

A) Discussion of rejection of claims 1-4, 7, 10-14, 17, and 20 under 35 U.S.C. 103(a) as being unpatentable over Lyster et al. in view of Pihl et al.

Lyster does indeed very explicitly disclose an electrode compartment (i.e. housing 3050) with an attached conductor (i.e. one of electrodes 3094), (Par. 259; Fig. 30). Lyster also discloses monitoring an electrical characteristic of the capacitance (i.e. voltage or real impedance/resistance and imaginary impedance/reactance/capacitance) created by the compartment conductor and an electrode (i.e. other of electrodes 3094) with its lead wire (Par 200; Fig. 30). **Furthermore, the phrase "attached conductor," in its broadest interpretation only means that the conductor is attached to the compartment by any means possible, i.e. the lead wires that connect the compartment 3050 to one of the electrodes 3094 in Fig. 30.** Lyster also discloses identifying handling of the electrode based on a change in the monitored electrical characteristic (Par. 200 and 259-262). Appellant phrased the claim language so that **only one of a handling and removing need be monitored** with Lyster monitoring the handling aspect as stated above. **Handling of the electrodes** (among other things) **in the broadest sense** would be what would cause damage, defects, or hydrogel drying, potentially to the point that they are no longer fit for use. **As such, Lyster's system is configured to monitor the electrodes for handling to the point where they are no**

Art Unit: 3766

**longer fit for use.** Pihl is used only as a relevant teaching to show the use of AC current in monitoring impedance between two conductors (i.e. electrodes 16,18) with corresponding lead wires 12,14 for the status of the electrodes for stimulation. The elements are analogous to the elements of Lyster, and as such, the principles are sound and very applicable within Lyster's field of invention. The above also applies to the method claim 11.

B) Discussion of rejection of claims 5, 6, 15, and 16 under 35 U.S.C. 103(a) as being unpatentable over Lyster et al. in view of Pihl et al. and further in view of Thu et al.

Again, Thu is concerned with periodically shifting between different frequencies of alternation to monitor the status of two conductors in relation to each other by impedance monitoring and utilizing said alternation to differentiate between two different status indicators. The elements are analogous to the elements of Lyster and Pihl, and as such, the principles are sound and very applicable within Lyster and Pihl's field of invention. Furthermore, Examiner is only utilizing the specific elements or teachings in a 103(a) modifier reference required by the claim and clearly articulated in the motivational statement concluding the rejection, as is proper for the rejection under 103(a).

Furthermore, Appellant argues that claims 5, 6, 15, and 16 are unobvious in view of the cited references since the secondary reference does not overcome the deficiencies of the case of *prima facie* obviousness. Examiner believes that the remarks made above to claim 1 pertaining to the combination of the base and

Art Unit: 3766

secondary references cure these deficiencies and render Appellant's arguments pertaining to said claims moot.

C) Discussion of rejection of claims 9 and 19 under 35 U.S.C. 103(a) as being unpatentable over Lyster et al. in view of Pihl et al. and further in view of Matthews et al.

Arguments in this regard are similar to Section B above regarding Thu. Furthermore, Appellant argues that claims 9 and 19 are unobvious in view of the cited references since the secondary reference does not overcome the deficiencies of the case of *prima facie* obviousness. Examiner believes that the remarks made above to claim 1 pertaining to the combination of the base and secondary references cure these deficiencies and render Appellant's arguments pertaining to said claims moot.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jeremiah T. Kimball/  
Jeremiah T. Kimball  
Examiner, Art Unit 3766

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/Carl H. Layno/

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